

ABSTRACT

A process control system for a crystal-growing apparatus is provided which includes a process controller and a temperature controller. The temperature controller includes an input terminal which receives a
5 temperature adjustment signal from a bottom heat thermocouple indicating the melt temperature. Based on the melt temperature, the temperature controller determines whether to increase, decrease or keep constant the melt temperature. The temperature controller further includes two additional input terminals which receive pulses from a pulse generator of the process
10 controller for automatically controlling temperature switches of a bottom heater temperature controller in accordance with the sensed level of the melt. The pulses are generated by the pulse generator upon receiving data with respect to how much the temperature needs to be adjusted and in which direction (increase or decrease).